National Defense Industrial Association

Robert M. Shea
LtGen, USMC
Director for Command, Control, Communications and Computer Systems (J6)

1 IS SLIDE

What is Network Centric Operations (NCO)?

The Operational Environment

- → Gain information superiority first
- → Deep sensor reach
- → Shared Battlespace awareness
- → Faster decision cycle
- → Unity of Effort
- → Mass effects rather than forces
- → "Joint" operations at lower tactical levels
- → Blurring of levels of war

Network Centric Operations

- → Rapid change
- → Speed of command
- → Self-synchronization of actions
- → Interdependent operations

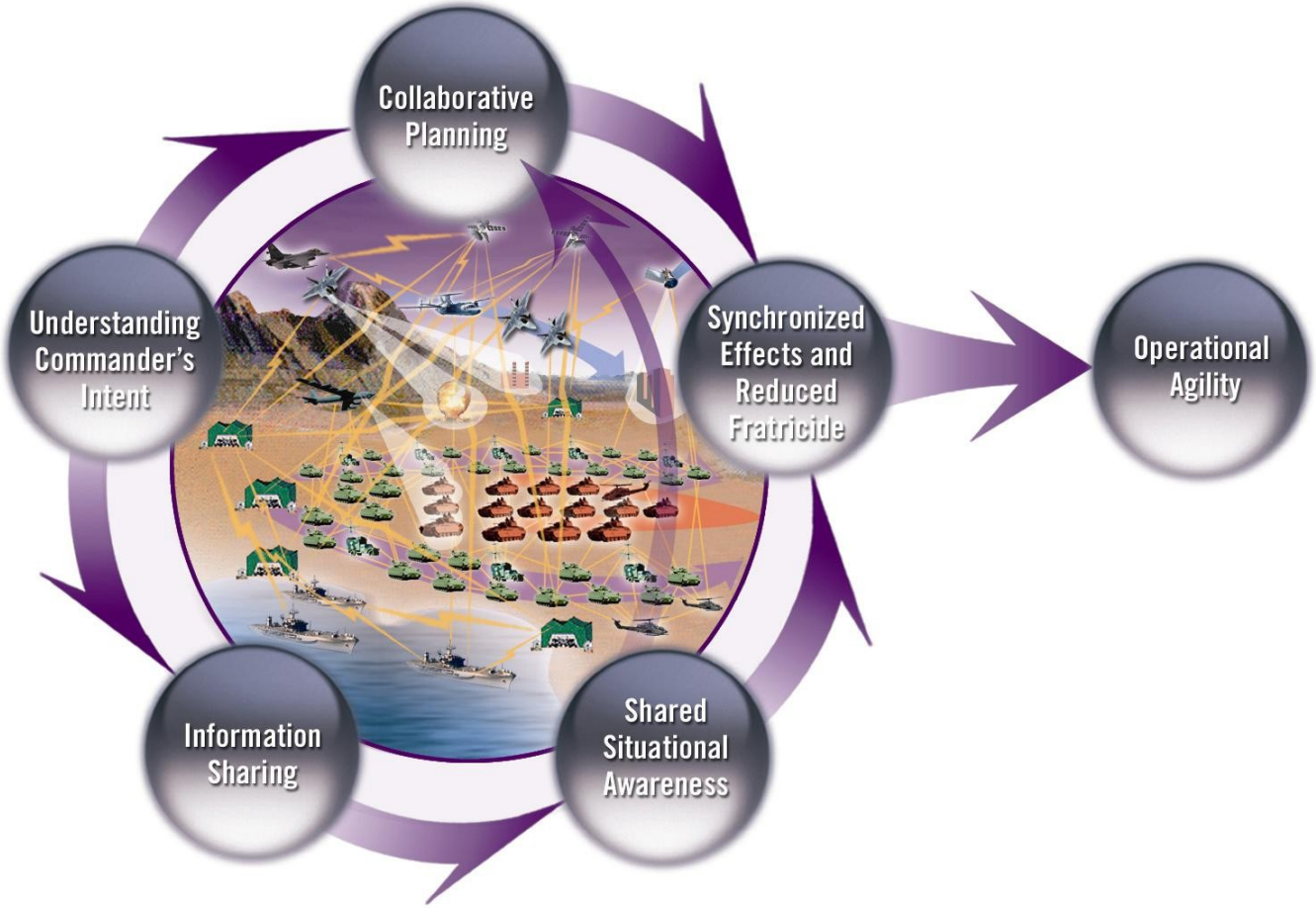
What's Valued

- → Networking
- → Sensing
- → Information sharing
- → Agility
- → Risk management
- → Innovation

- **A "net-enabled" Joint Force that is linked and synchronized in time and purpose**
- **It's about leveraging technology to create new synergies in the way DOD trains, organizes, and leads that will enable more effective and efficient military operations**

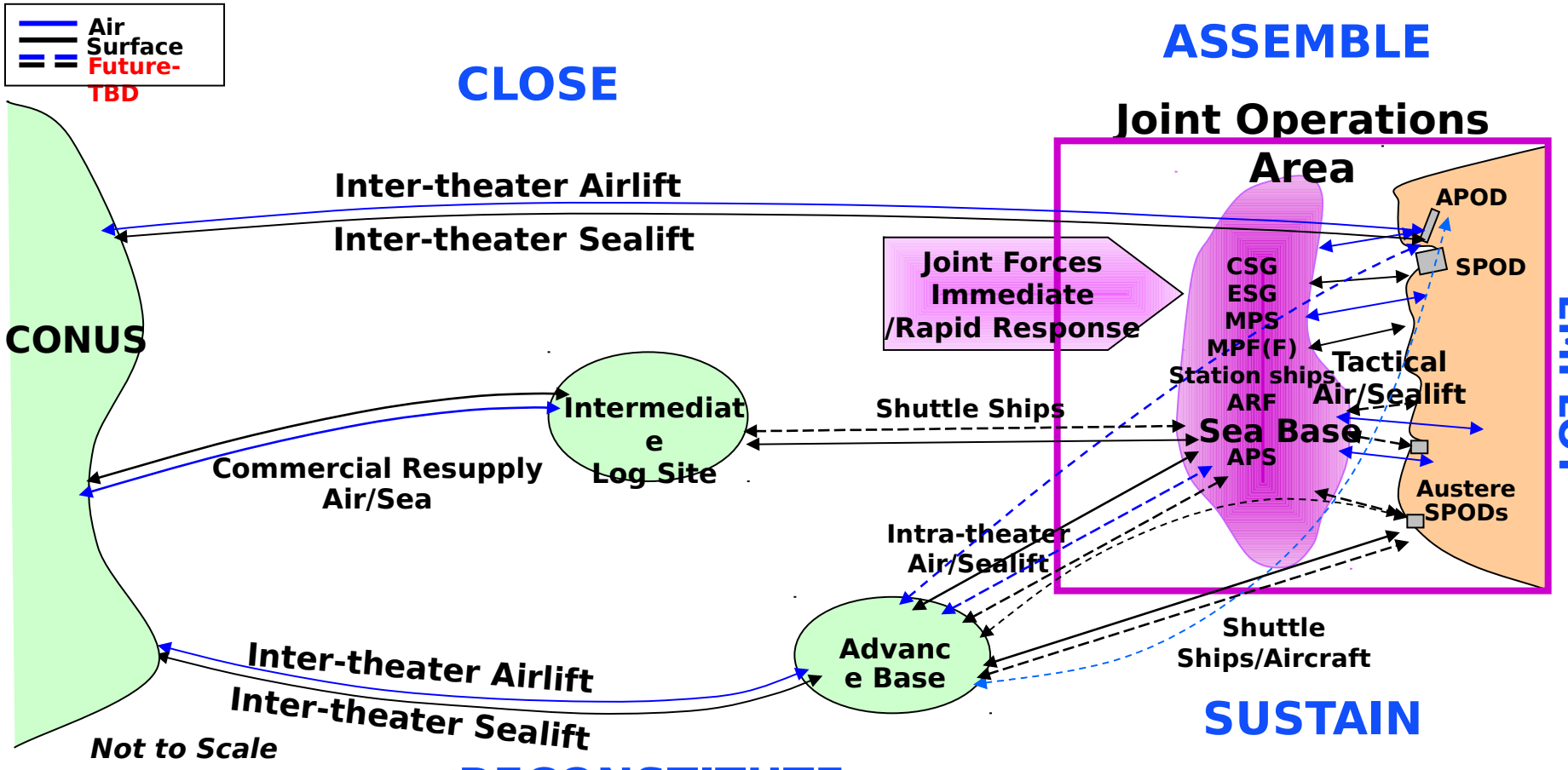
2 JS SLIDE

Characteristics of "Networked" Joint Force



Creating a common understanding of the battlespace enabling Commander's to take quicker, more decisive actions

Seabasing Overview

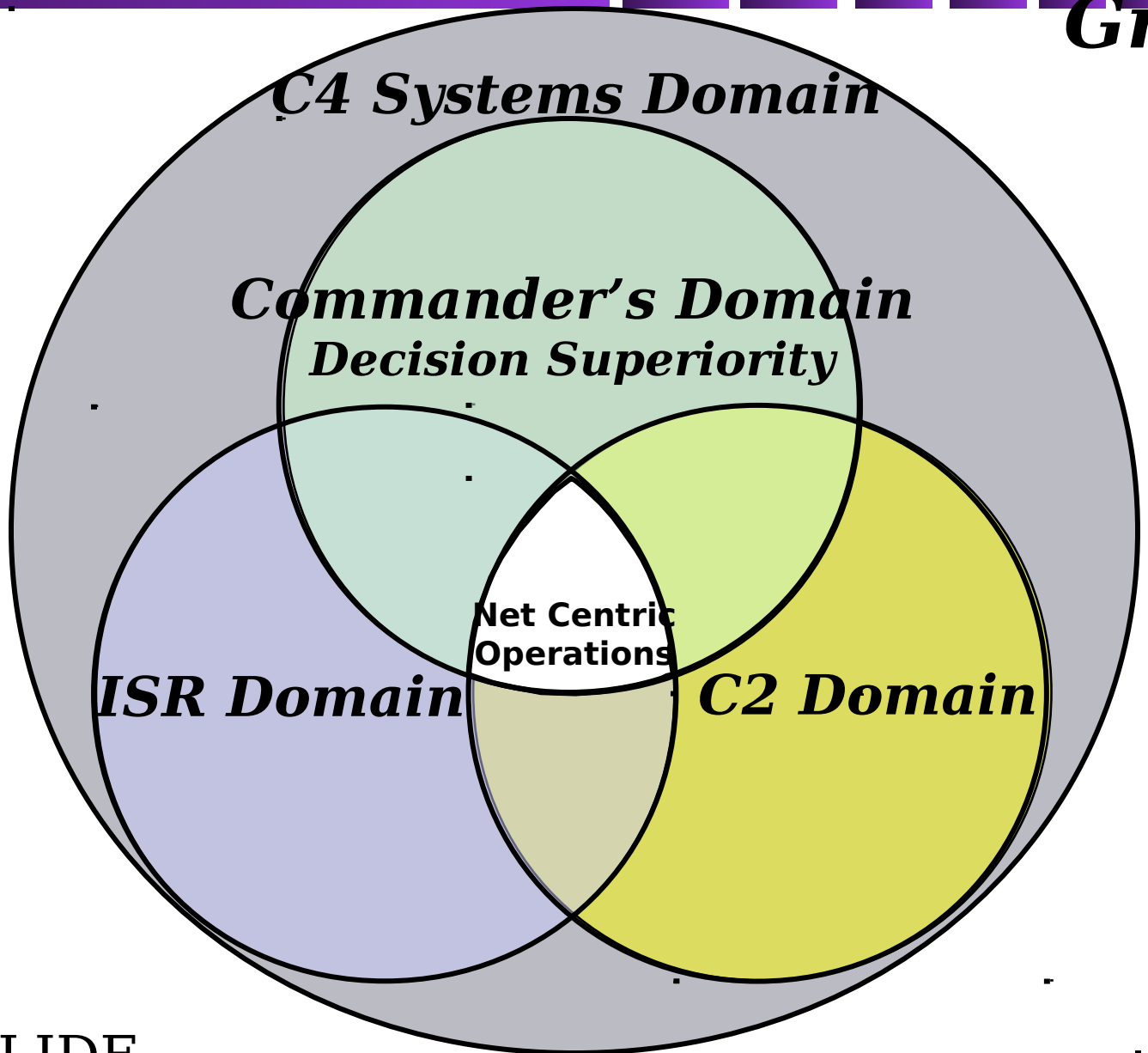


The *sea base* is a scalable aggregation of networked platforms that enable a Joint Force Commander to base and operate joint forces from the sea. The *sea base* provides a location to close, assemble, employ, sustain, and reconstitute those forces.

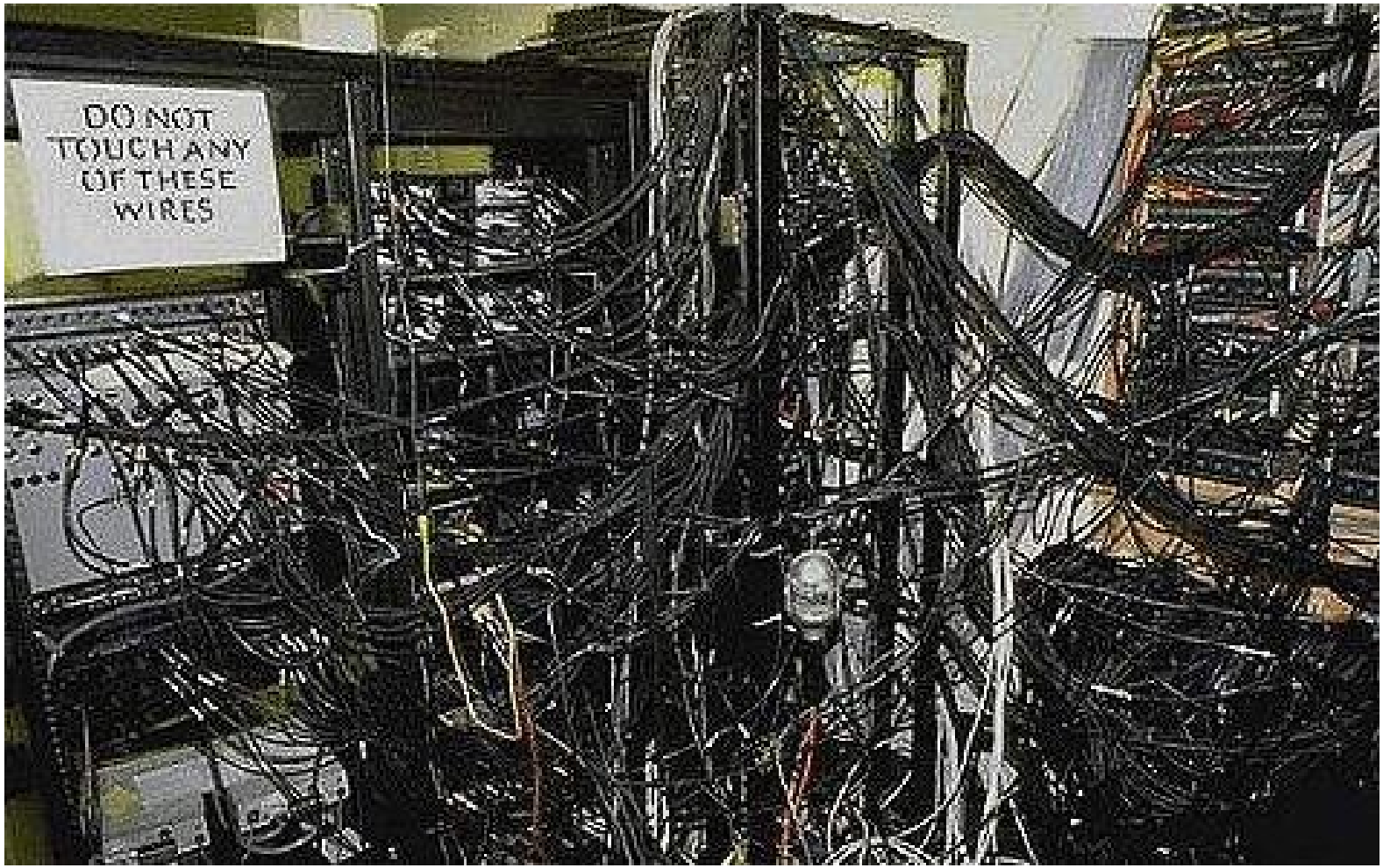
Required Joint and FORCEnet Capabilities

- **Provide robust, reliable communication to all nodes**
- **Provide reliable, accurate and timely information on friendly, neutral and hostile elements**
- **Store, catalogue and retrieve all information produced by any node on the network in a comprehensive, standard repository**
- **Process, sort, analyze, evaluate and synthesize large amounts of disparate information**
- **Provide a tailorable, user-defined, sharable representation of the situation**
- **Automate certain lower-order C2 sub-processes and use intelligent agents and automated decision aides to assist in performing high-order tasks**
- **Provide Information Assurance**
- **Function in multiple security domains and multiple security levels**
- **Interoperate with C2 systems of very different type and level of sophistication**
- **Allow nodes to function while temporarily disconnected from the network**
- **Automatically and adaptively monitor and manage the functioning of C2 systems and the network to ensure effective and efficient operation**
- **Incorporate new capabilities into the network quickly, without disruption**
- **Provide the ability to make and implement good decision quickly under conditions of uncertainty, friction, time pressure and other stresses**

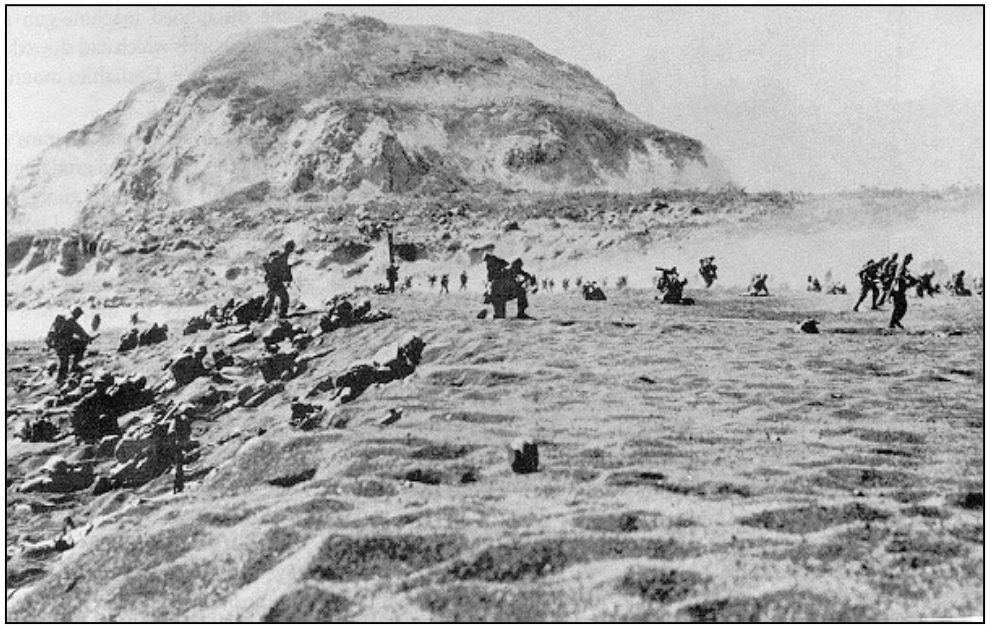
The Network as the "Center of Gravity"



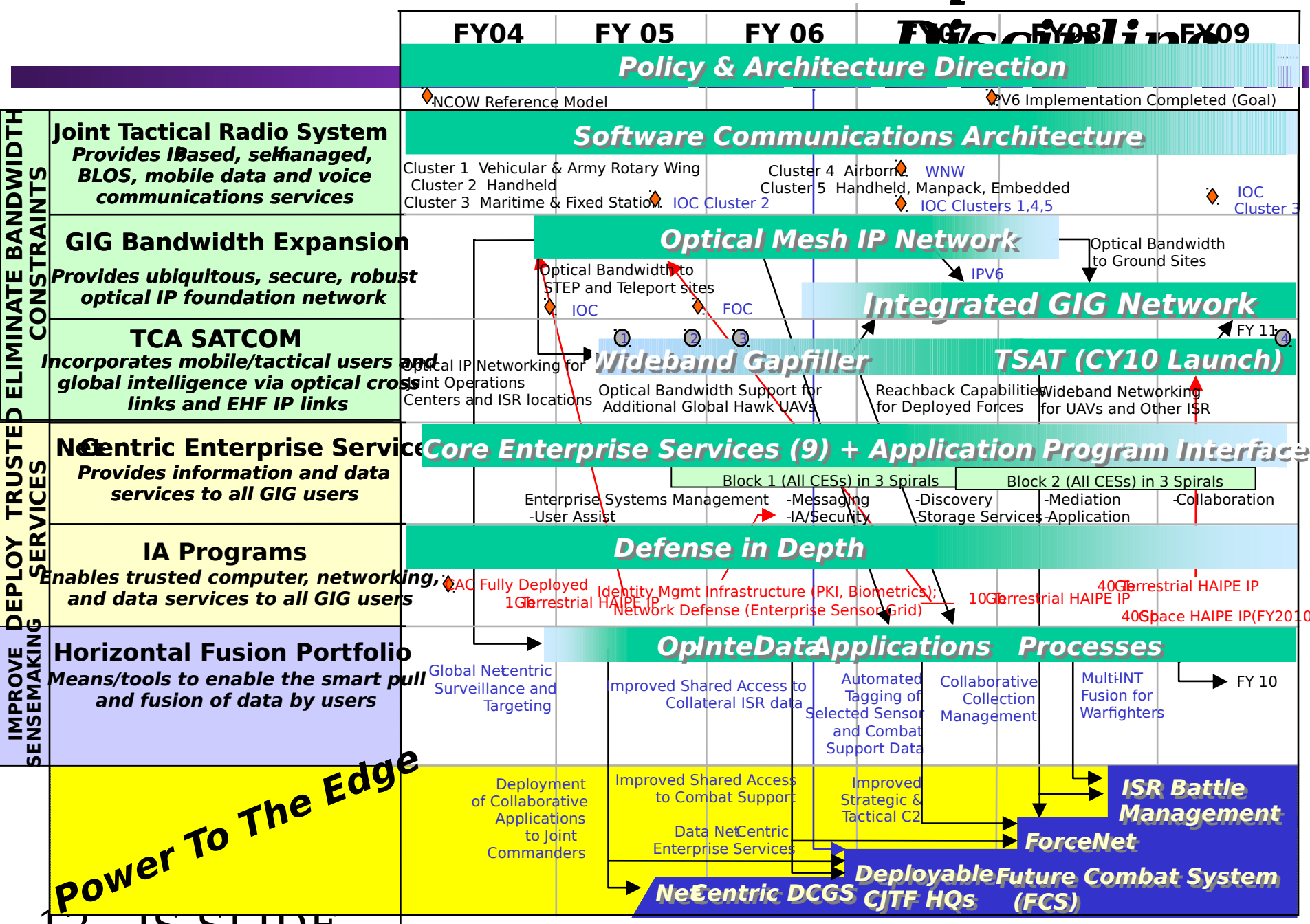
Configuration Management



The Beachhead at Iwo Jima

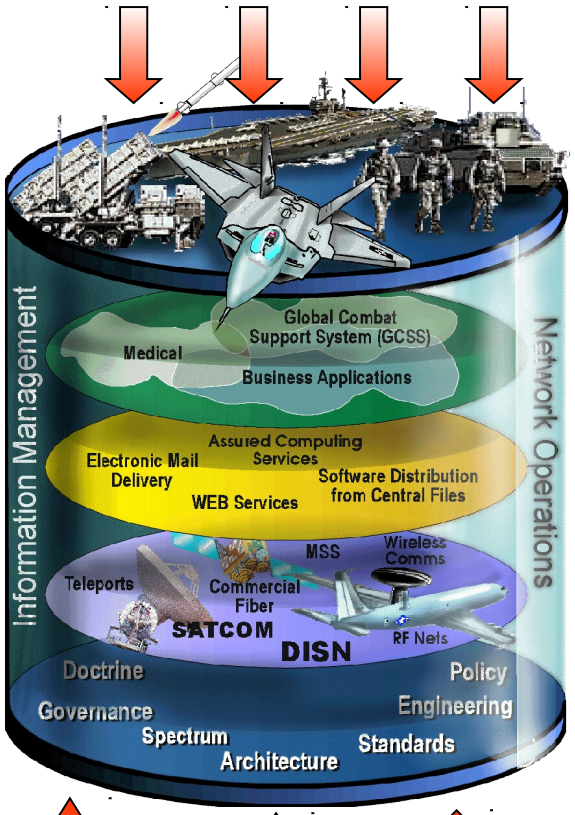


Acquisition



Threats to the Global Information Grid

Traditional Threats



Non-Traditional & Emerging Threats

Cleared "Insiders"

Viruses

Electro Magnetic Pulse Attack

Crypto Attacks

Attacks on Critical Infrastructu

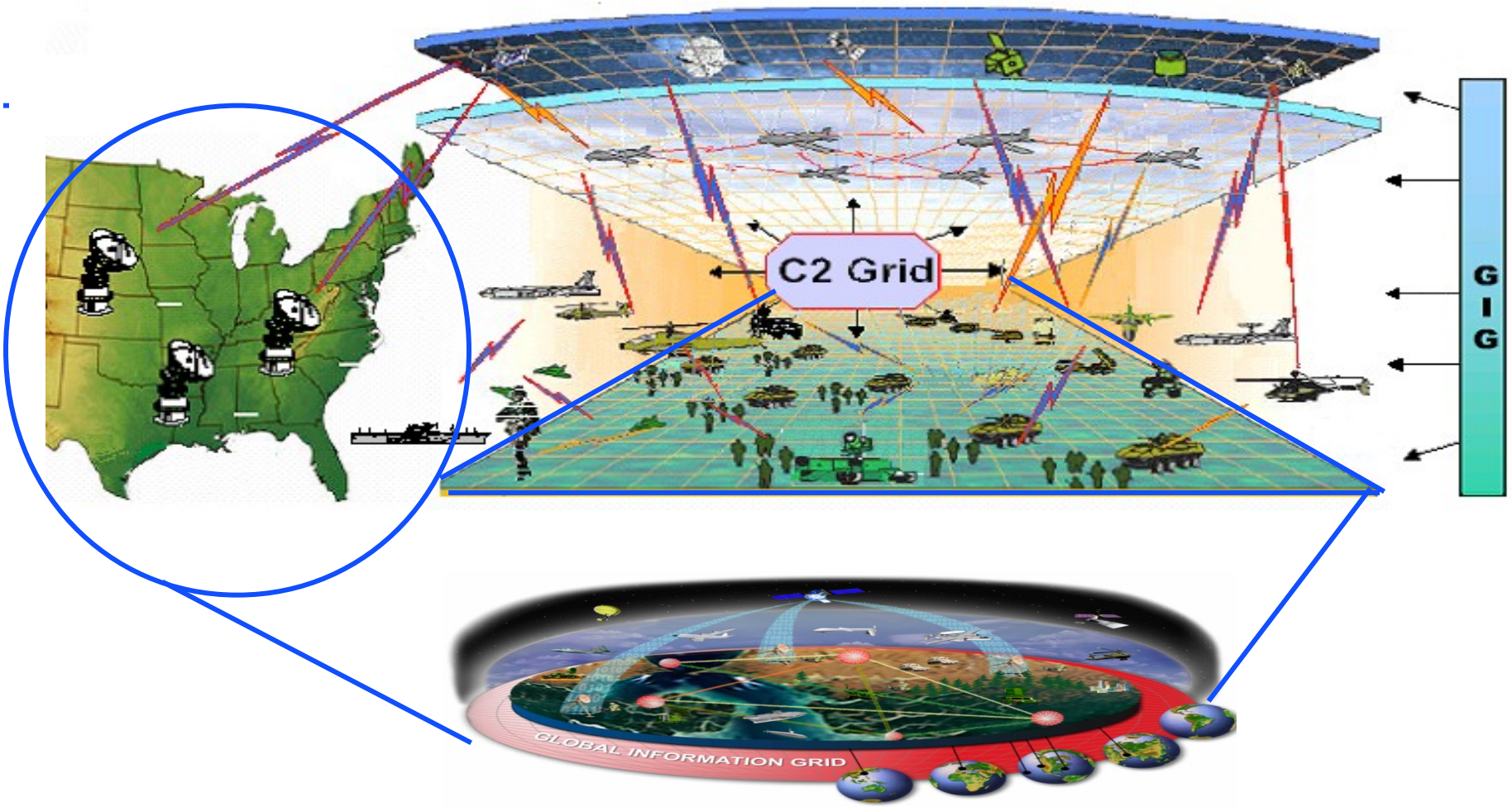
Globalization

Unqualified Workforce

Dated Protection Policies and Procedures

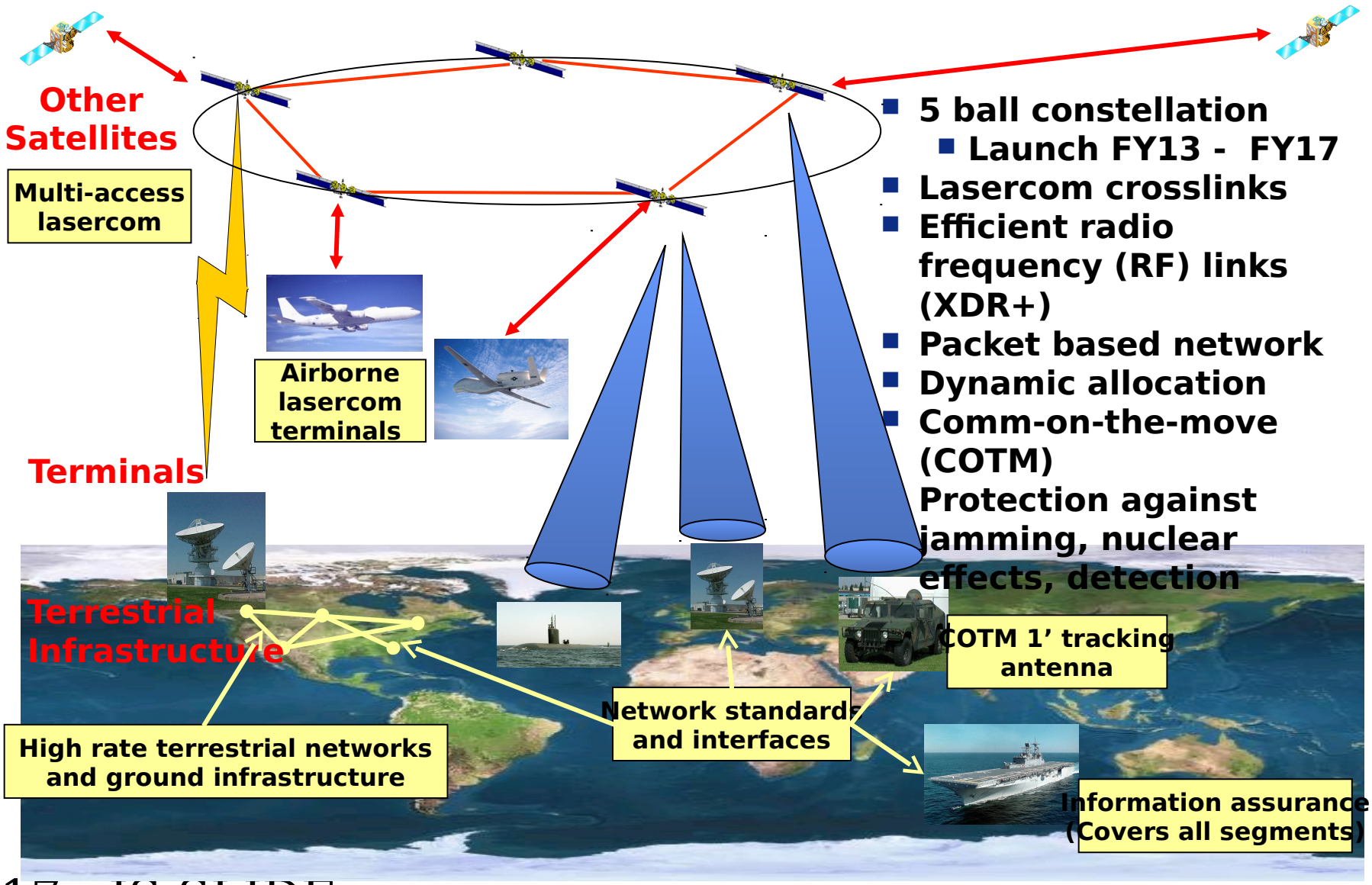
We must conduct Joint C4 Training…because lives depend on it!

Transport Systems



The Backbone of Transformational Communications

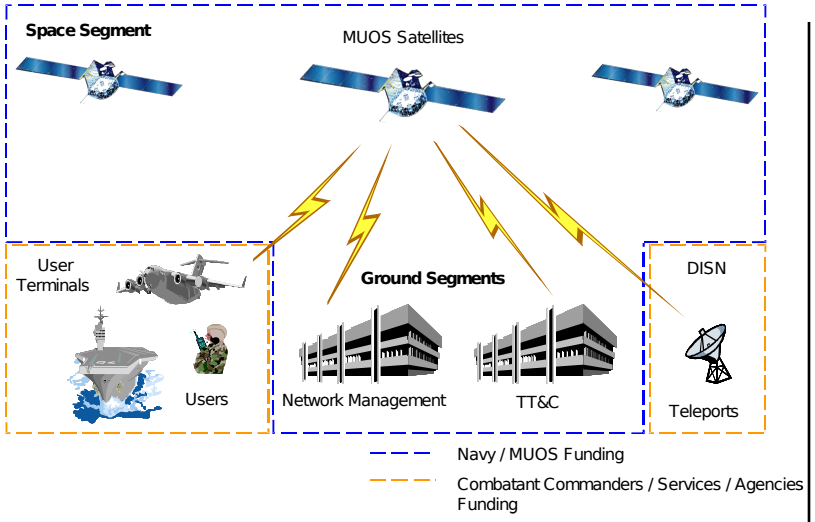
TSAT Key Features



- 5 ball constellation
  - Launch FY13 - FY17
- Lasercom crosslinks
- Efficient radio frequency (RF) links (XDR+)
- Packet based network
- Dynamic allocation
- Comm-on-the-move (COTM)
- Protection against jamming, nuclear effects, detection

Joint Tactical Radio System (JTRS)

The Mobile User Objective System (MUOS)



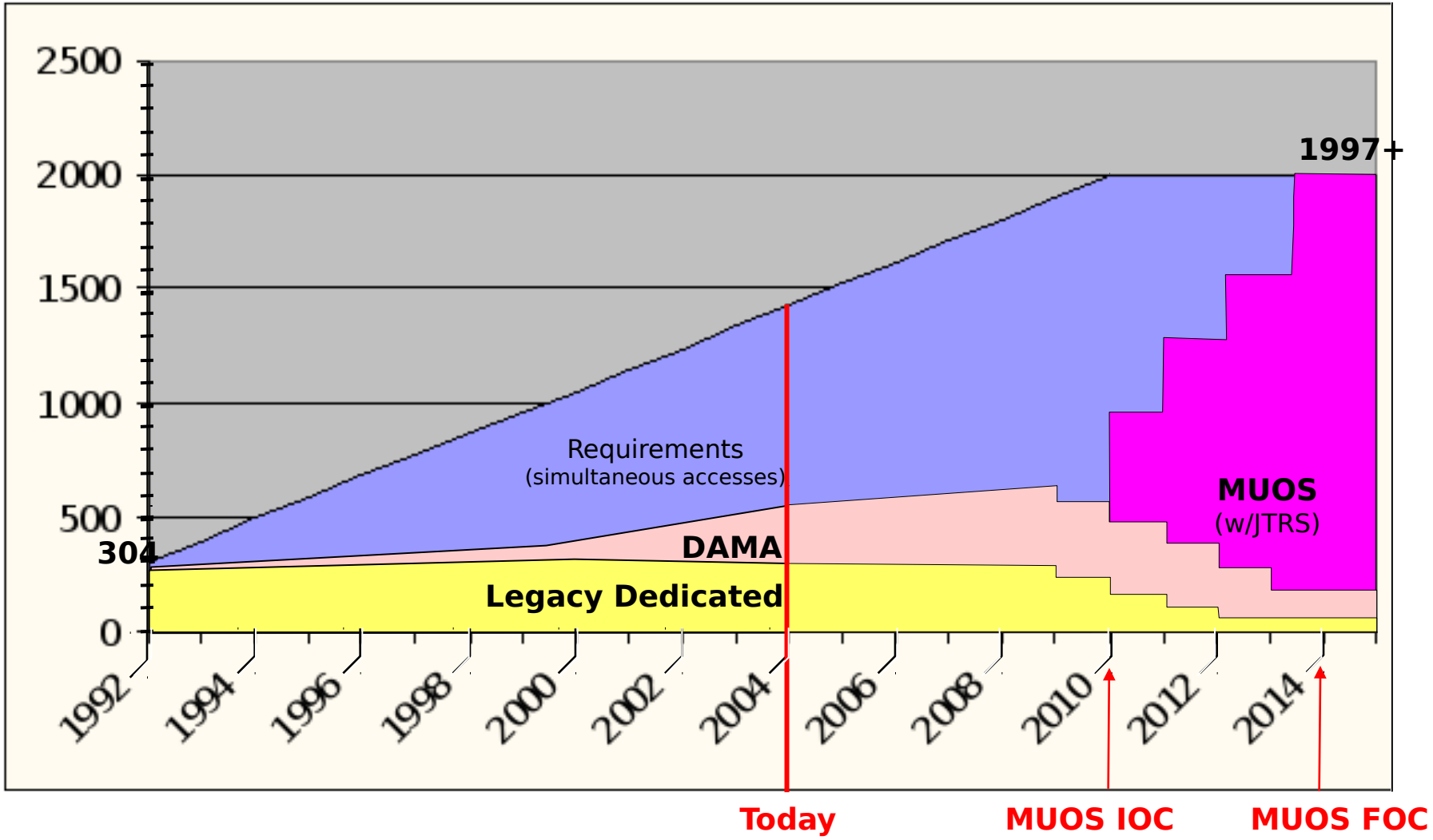
- Provides narrowband (<64kbps) tactical SATCOM to forces on the move
- Mobile Users: Handheld, Ships, Vehicles and Subs
- Capacity 39.2 Mbps, 1997 Simultaneous accesses
- Flexibility: 15 min planning, 6 sec access
- Backward Compatibility (but must transition to gain efficiency)
- Interim Op Capability – 2010 / Full Op Capability - 2014
- Funding
  - USecAF, IPR#3: Navy agreed to fully fund
  - Terminals Funded by Services
  - 20% by IOC, 85% FOC per CRD. See Issues

4 geosynchronous satellites, plus 1 spare

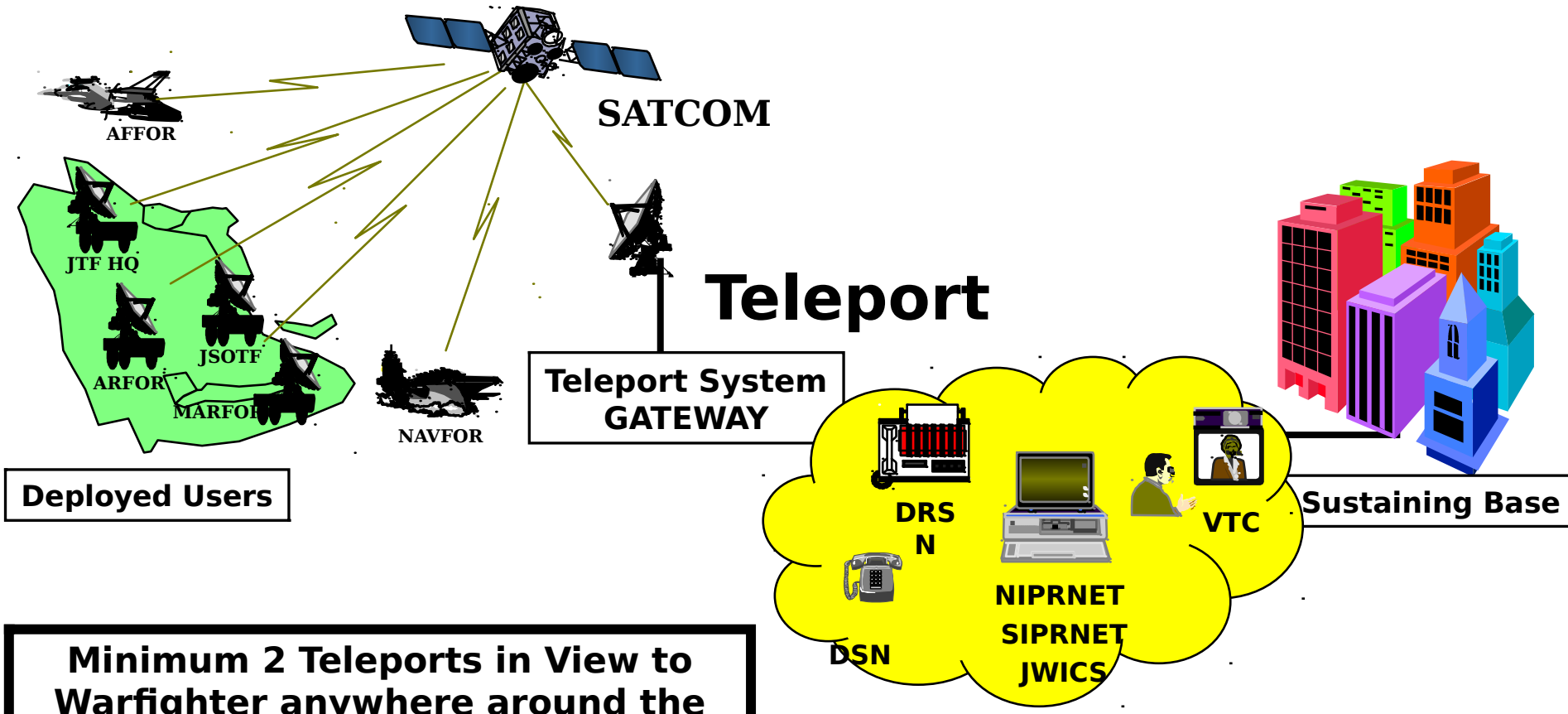
Potential Issues

- Terminal Transition to JTRS:
  - Handheld Initial Rate Pre-production limited to 10%
  - Aircraft transition to JTRS: Late start and requires integration, installation—Requires monitoring
- MUOS Waveform Developed by MUOS Contractor
  - Including JTRS Compliant Waveform
- Efficient use of resources dependent on transition to MUOS Terminals and Waveform
- Complexity of Software loads

Satellite Requirements vs Resources



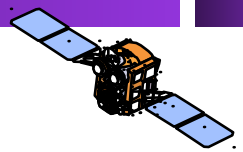
Teleport



Minimum 2 Teleports in View to Warfighter anywhere around the globe

Provide seamless communications support to the warfighter

DOD Spectrum Requiremen



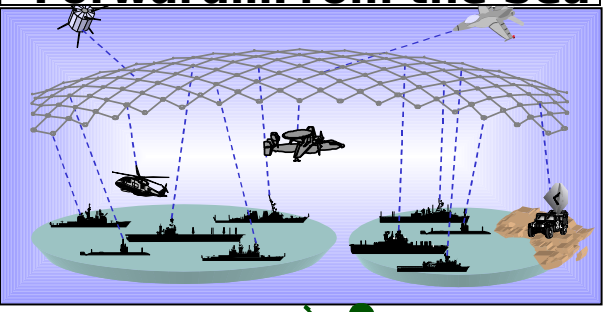
Information on Demand

- Aeronautical Platforms
- Naval Platforms
- Ground Vehicles
- Missile Defense
- Missile Systems
- Munitions Systems
- Soldier Systems

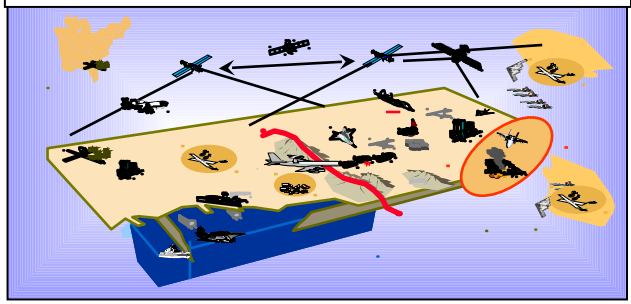
Military Capabilities

- Command and Control
- Targeting
- Battle Damage Assessment
- Fire Support
- Combat ID

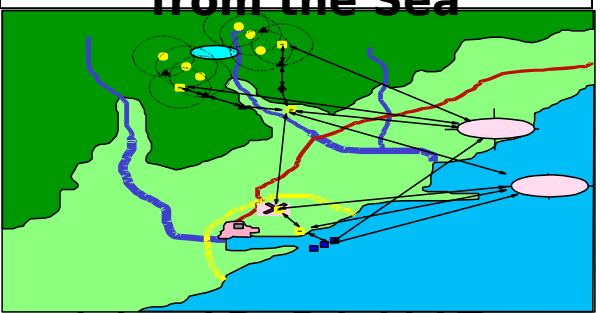
Forward...From the Sea



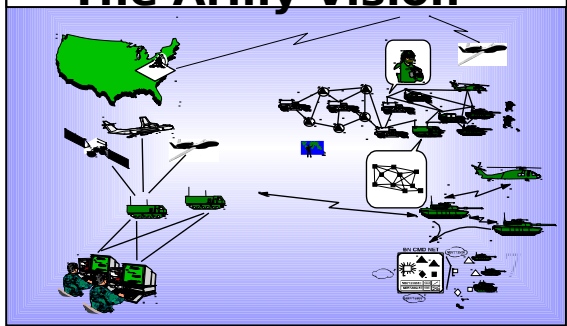
Air Force Vision 2020

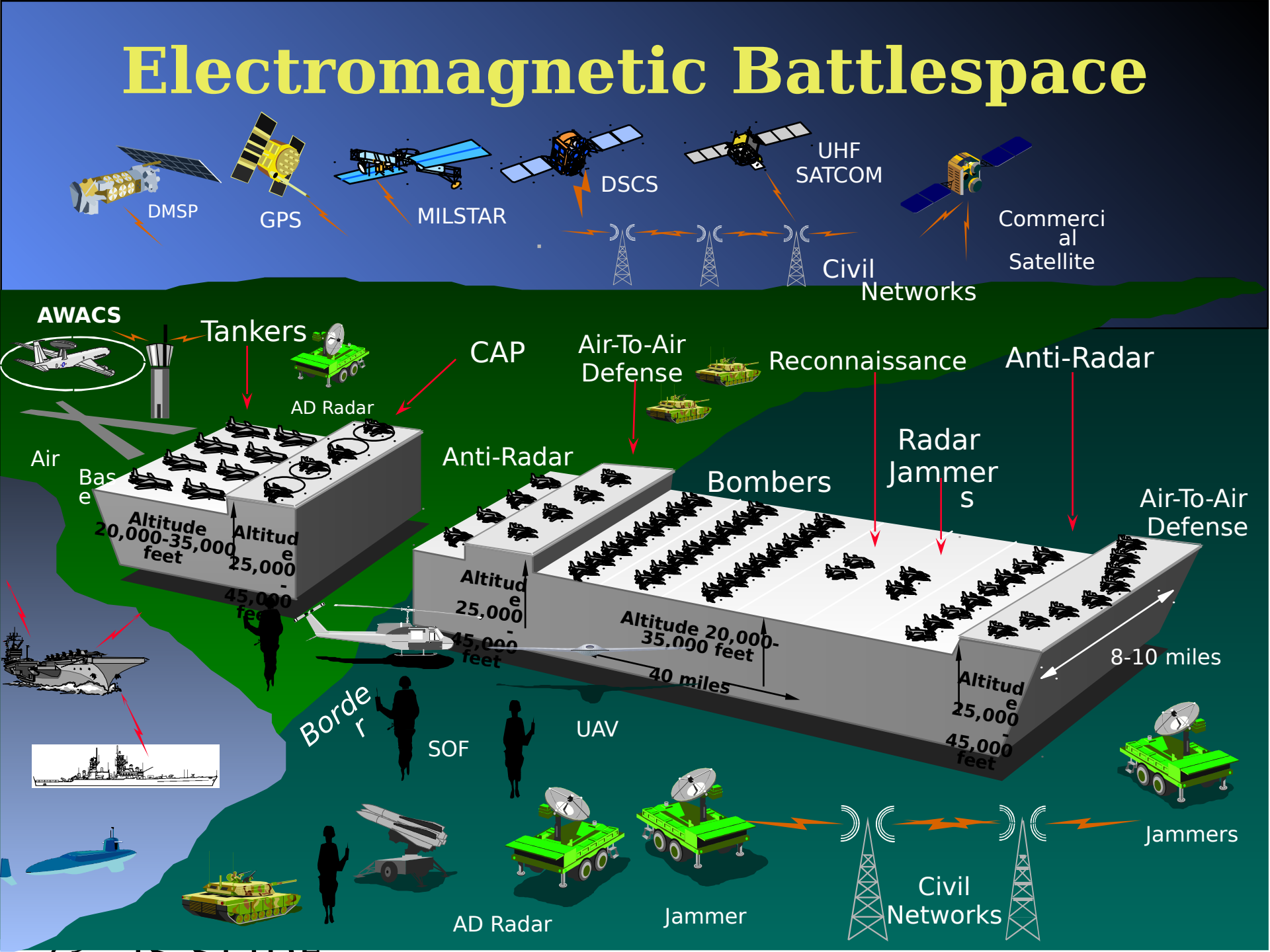


Operational Maneuver from the Sea



The Army Vision




Electromagnetic Battlespace
DMSP
GPS
MILSTAR
DSCS
UHF SATCOM
Commercial Satellite
Civil Networks
AWACS
Tankers
CAP
AD Radar
Air-To-Air Defense
Reconnaissance
Anti-Radar
Air Base
Anti-Radar
Radar Jammers
Bombers
Air-To-Air Defense
Altitude 20,000-35,000 feet
Altitude 25,000 - 45,000 feet
Altitude 25,000 - 45,000 feet
Altitude 20,000-35,000 feet
40 miles
Altitude 25,000 - 45,000 feet
8-10 miles
Border
SOF
UAV
AD Radar
Jammer
Civil Networks
Jammers

Deployable Joint Command and Control (DJC2)

Multi-National Information Sharing

In a Nutshell

- **Historic Opportunity…"The Department must align itself with the on-going information revolution…by developing information-enabled organizational relationships and operational concepts."**

- **"Transforming how we fight….it hinges on development of future joint warfighting concepts"**
  - **SECDEF's Transformation Planning Guidance (April 2003)**

Questions?

NDIA

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